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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,544	06/16/2006	Nityalendra Singh	GJE006-US	7779
24222	7590	05/27/2009		
Vern Maine & Associates 100 MAIN STREET P O BOX 3445 NASHUA, NH 03061-3445			EXAMINER NUCKOLS, TIFFANY Z	
			ART UNIT	PAPER NUMBER
			1792	
			MAIL DATE	DELIVERY MODE
			05/27/2009	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/596,544

**Applicant(s)**

SINGH ET AL.

**Examiner**

TIFFANY NUCKOLS

**Art Unit**

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-21 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/86)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction is required under 35 U.S.C. 121 and 372.
2. This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.
3. In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-7, drawn to a plasma processing apparatus.

Group II, claim(s) 8-18, drawn to a method of plasma cleaning.

Group III, claim(s) 19-21, drawn to a method of deposition using plasma processing.

4. The inventions listed as Groups I through III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

**5. Evidence of lack of unity among the claims groups is found in U.S. Patent No. 5766364 to Ishida et al in view of U.S. Patent No. 6538872 to Wang et al and U.S. Patent No. 6189482 to Zhao et al.**

6. Ishida et al teach a plasma processing apparatus (*See Ishida et al, Fig. 1*) comprising: a chamber (*See Ishida et al, 1 Fig. 1*) within which a substrate (*See Ishida et al, 2 Fig. 1*) is processed in use (*See Ishida et al, Col. 2, line 22*); a first electrode (*See Ishida et al, 4 Fig. 1*) formed from an alloy (*See Ishida et al, Col. 3,*

*line 13*) having substantially planar upper and lower surfaces (See *Ishida et al*, see *planarity of 4 Fig. 1*), wherein the substrate is placed for processing upon the upper surface of the first electrode (See *Ishida et al*, *Col. 3, lines 16 and 2 on 4 Fig. 1*); a second electrode (See *Ishida et al*, *105 Fig. 1*); a heater (See *Ishida et al*, *3 Fig. 1*) for heating at least the first electrode (See *Ishida et al*, *implicit by heating the substrate through intimate contact, Col. 3, line 17*) to a processing temperature (See *Ishida et al*, *Col. 3, line 17*); and a power supply system (See *Ishida et al*, *8 Fig. 1*) arranged to cause an electrical discharge between the said first and second electrodes so as to produce the plasma (See *Ishida et al*, *implicit as it is a plasma processing apparatus, Col. 1 lines 66-67, Col. 2, lines 1-2, 20-26*) in the chamber from one or more gases (See *Ishida et al*, *Col. 4, lines 2-6*) supplied to the chamber, characterized in that: the heater (3) comprises one or more heating members (See *Ishida et al*, *plurality of 3 Fig. 1*) arranged in a substantially planar manner (See *Ishida et al*, see *position of members 3 Fig. 1*), the heater and electrode forming an assembly (See *Ishida et al*, *unified pedestal of 3 and 4 Fig. 1*) such that the parts of the one or more heating members that are closest (See *Ishida et al*, *upper ends of heating members 3 Fig. 1*) to the said upper surface (See *Ishida et al*, *surface where substrate 2 is positioned Fig. 1*) of the first electrode (See *Ishida et al*, *4 Fig. 1*), define a first plane (*implicit, since members 3 are in planar position*) that is separated from the upper surface by a distance Y (See *Ishida et al*, see *distance between upper ends of heating elements 3 to upper surface of electrode 4 Fig. 1*),

the parts of the one or more heating members that are furthest (*See Ishida et al, lower ends of heating members 3 Fig. 1*) from the said upper surface (*See Ishida et al, surface where substrate 2 is positioned Fig. 1*) of the first electrode, define a second plane (*See Ishida et al, implicit, since members 3 are in planar position Fig. 1*), wherein the separation of the first and second planes defines a heater thickness X (*See Ishida et al, thickness of elements 3 Fig. 1*).

7. Ishida et al do not teach the first electrode is made from a nickel alloy.
8. Wang et al teach an electrode (*See Wang et al, 105 Fig. 1*) made from a nickel alloy (*See Wang et al, Col. 12 line 64-Col. 13 line 2*).
9. It would have been obvious to one of ordinary skill in the art at the time of the invention, with a reasonable expectation of success, to alternatively substitute the first electrode in Ishida et al with the first electrode made from a nickel alloy as taught by Wang et al, as art-recognized equivalent means for an electrode. It has been held that an express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). See MPEP 2144.06 II.
10. Ishida et al in view of Wang et al do not expressly teach wherein Y lies in the range 1.2X to 3X.
11. Zhao et al teach an electrode (*See Zhao et al, 103 Fig. 7A*) with a thickness of 3-15 mm (*See Zhao et al, Col. 19 lines 45-55*) and a heater (*See Zhao et al, 107 Fig. 7A*) with a thickness of 5 mm (*See Zhao et al, Col. 20 lines 32-36*). The ratio of

the thickness of the electrode to the heater, i.e., the ratio of Y to X encompasses the range of 1.2X-3X.

12. Ishida et al in view of Wang et al disclose the claimed invention except for the range of thicknesses of the electrode in relation to the heater. Zhao teaches thicknesses of the electrode in relation to the heater that encompass the range as recited in the claims. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the electrode 1.2X-3X, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. See MPEP 2144.05 II (A) and case law therein.

13. Groups II and III require the apparatus as disclosed in Group I. As such, the corresponding technical feature among the claim groups is not found to constitute a corresponding special technical feature based on the prior art. Hence, there is a lack of unity among the claim groups.

14. A telephone call was made to Andrew Cernoto (603-886-6100) on May 14, 2009 to request an oral election to the above restriction requirement, but did not result in an election being made.

15. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

16. The election of an invention or species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

17. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### ***Conclusion***

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIFFANY NUCKOLS whose telephone number is (571)270-7377. The examiner can normally be reached on Monday through Friday 9:00AM - 5:30 PM.

19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

20. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TIFFANY NUCKOLS/  
Examiner, Art Unit 1792

/Parviz Hassanzadeh/  
Supervisory Patent Examiner, Art Unit 1792